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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,611	06/27/2003	Mike Ravkin	LAM2P428	8016

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EXAMINER
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WILKINS III, HARRY D

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 04/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/607,611	<b>Applicant(s)</b> RAVKIN ET AL.	
	<b>Examiner</b> Harry D. Wilkins, III	<b>Art Unit</b> 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 March 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-39 is/are pending in the application.  
4a) Of the above claim(s) 3, 11, 12 and 25-35 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-24 is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Status***

1. Applicant's arguments with respect to claims 1-2 and 4-10 have been considered but are moot in view of the new ground(s) of rejection.
2. The prior art references, both Beck and Mertens et al, applied in the previous Office Action do not teach removal of the applied liquid at the proximity head such that the devices would have been capable of forming the controlled meniscus between the proximity head and the surface of the wafer as claimed. Both Beck and Mertens et al teach flowing the electrolyte over the edge of the substrate and not removing it at the proximity head. Therefore, the rejection grounds based on Beck and Mertens et al has been withdrawn.
3. The rejection grounds based on the combination of Beck and de Larios et al has been withdrawn since Beck does not teach the recovery of the applied electrolyte using the proximity head to thereby form a controlled meniscus. The proximity head of Beck only feeds solution to the substrate surface and the solution flows across the surface of the substrate and falls off the edge of the substrate. Therefore, the rejection grounds based on Beck and de Larios et al has been withdrawn.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-2 and 4-9 are rejected under 35 U.S.C. 102(a) or (e) as being clearly anticipated by Colgan et al (US 6,495,005).

Colgan et al anticipate the invention as claimed. Colgan et al teach (see abstract and figures 2, 13 and 14 and cols. 9 and 10) an apparatus for electroplating a surface of a wafer including a proximity head 400 capable of being electrically charged as an anode and having a plurality of outputs and inputs. When the proximity head was placed close to the substrate, each of the inputs 402, 406 was capable of delivering a fluid to the surface of the wafer and each of the plurality of outputs 404, 408 was capable of removing the fluids from the surface of the wafer. The delivery and removal of fluid from the surface enabled localized electroplating.

Regarding claims 2 and 4, the wafer seed layer was provided a cathodic bias and the proximity head was provided an anodic bias.

Regarding claims 5, the plurality of inputs were formed as an annular ring and a circular conduit.

Regarding claim 6, the fluid is defined as an electroplating solution and a rinse solution.

Regarding claim 7, Colgan et al suggest (see paragraph spanning cols. 4 and 5) using the apparatus for electroplating of copper, nickel or cobalt.

Regarding claim 8, the plurality of outputs are formed as annular rings.

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Regarding claim 9, the localized metal plating occurs in a volume of fluid smaller than the entire surface of the wafer.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colgan et al (US 6,495,005) in view of Lehman et al (US 6,433,541).

Colgan et al do not teach using an eddy current sensor to monitor the plated metal film.

Lehman et al teach (see abstract) an eddy probe for sensing information about a film during processing.

Therefore, it would have been obvious to one of ordinary skill in the art to have used the eddy probe as taught by Lehman et al in the apparatus of Colgan et al in order to monitor the state of the plated metal film.

***Double Patenting***

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140

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F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 1, 2 and 4-10 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-29 of U.S. Patent No. 6,488,040 in view of Colgan et al (US 6,495,005) (for all claims) and Lehman et al (US 6,433,541) (for claim 10 only). The proximity head as claimed is disclosed by the claims of the '040 patent. It would have been obvious to one of ordinary skill in the art to have charged the proximity head as an anode as suggested Colgan et al because the proximity head would have been capable of precise control of where the electrolyte of Colgan et al was applied to the substrate.

10. Claims 1, 2 and 4-10 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 10/261,839 in view of Colgan et al (US 6,495,005) (for all claims) and Lehman et al (US 6,433,541) (for claim 10 only). The proximity head as claimed is disclosed by the claims of the '839 application. It would have been obvious to one of ordinary skill in the art to have charged the proximity head as an anode as

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suggested Colgan et al because the proximity head would have been capable of precise control of where the electrolyte of Colgan et al was applied to the substrate.

This is a provisional obviousness-type double patenting rejection.

***Allowable Subject Matter***

11. Claims 13-24 are allowed.

12. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach or suggest using a second proximity head for providing the cathodic bias to the metal seed layer of the substrate to be plated. There would not have been motivation to use a second proximity head to provide that combined liquid/electrical contact absent Applicant's specification.

13.

***Conclusion***

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

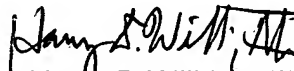
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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Harry D Wilkins, III  
Primary Examiner  
Art Unit 1742

hdw